Information
Services
Program
(ISP)

Information Systems Planning Report

"Other" Industry Sector

INPUT®

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INFORMATION SYSTEMS PLANNING REPORT

"OTHER" INDUSTRY SECTOR

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INFORMATION SYSTEMS

PLANNING REPORT

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I

Introduction

I

Introduction

The "Other" Industry sector includes a number of industry segments which do not fit conveniently into any of the vertical market sectors INPUT reports on. This report covers six distinct segments as follows (see Exhibit I-1).

- Hotel/Motel includes lodging chains, inns, and resorts but not restaurants; the retail distribution industry sector report covers restaurants.
- Agriculture includes grain, produce, and livestock farms but not farm suppliers.
- Construction includes specialized construction firms as well as land developers and contractors.
- Recreation and entertainment includes theaters, sports, motion pictures, TV, and radio.
- Automotive services includes automobile rental agencies as well as automotive repair services.
- Non-profits and membership organizations includes non-profit philanthropic organizations, associations, and membership clubs.

EXHIBIT I-1

"OTHER" INDUSTRY SECTOR

- Hotel/Motel
- Agriculture
- Construction
- Recreation/Entertainment
- Automotive Services
- Non-Profit/Membership Organizations

II

Major Issues

II

Major Issues

A

Driving Forces

Driving forces for this segment are varied because of the variety of industry segments covered (see Exhibit II-1).

EXHIBIT II-1

"OTHER" INDUSTRY DRIVING FORCES

Hotel/Motel
- Stiff Competition
- Saturated Market

Construction
- Industry Cycles
- Complexity of Construction

Agriculture
- Weak Farm Economy

Recreation/Entertainment
- Changing Consumer Preferences

Automotive Services
- Competition for Repeat Customers

Non-profits
- Special Financing Challenges

Tax reform is changing accounting policies and procedures. This forces Information Systems departments to adapt existing accounting systems to the new rules.

Advancing network technology and ever more powerful personal computers are driving change toward decentralized systems in all industries.

1. Hotel/Motel

This industry is driven by a need to attract customers and cultivate chain loyalty. The market for hotel/motel services is nearly saturated, so growth for individual companies depends on their ability to develop a base of loyal repeat customers and to woo customers away from other chains. IS for the hotel/motel industry is focusing on improving customer service.

2. Construction

The construction industry is on the down side of its current cycle and is likely to continue on that course throughout 1987. As a result, IS departments are working particularly hard to help minimize corporate as well as IS costs.

Perhaps the most important factor influencing IS in construction is the nature of construction management. Job sites change frequently, and use of subcontractors makes organizing a construction project very complex. Coordinating computer systems under these conditions is difficult.

3. Agriculture

The sagging farm ecomony makes cost reduction a top priority in this segment. Most survey respondents claimed to be feeling pressure imposed by the weak farm ecomomy. The need to be competitive in an unhealthy market is the primary motivating force for IS managers in agriculture.

4. Recreation/Entertainment

Consumer tastes and preferences drive the recreation/entertainment industry, and providing the means for monitoring tastes and preferences is a key job of the IS department.

5. Automotive Services

Like the hotel/motel segment, the automotive services segment is driven by the high level of competition for customers. In auto rentals and auto

repair, convenience and service differentiate rental agencies and garages from their competitors.

6. Non-Profit/Membership Organizations

Financing is a constant driving force for non-profits. Since the sources of income for non-profits are usually not direct benefactors of their services, there is an unusual challenge here to raise money through means outside of the principal activity or objective of the organization.

Although associations derive a large portion of income from dues from their direct benefactors, sources of income such as investments and unrelated business activities are more important to associations than to for-profit businesses. Running on a trim budget and managing information are chief concerns for associations.

Membership organizations are driven by the need to provide services and maintain member records.

B

Issues and Objectives

While most issues and objectives are segment-specific, a few are common to IS departments in all the segments covered in this report (see Exhibit II-1).

Adjusting accounting systems to changes imposed by tax reform is an immediate objective for all IS departments.

Distributed systems and large numbers of isolated PCs provide a new management challenge for IS directors. With the number of end users increasing all the time, managing a company's information systems is increasingly a job of managing people. For some IS directors, the attitudes of upper management are an obstacle to implementing effective computer systems. Management's resistance to change was a recurring peeve of IS management in most of the sample.

1. Hotel/Motel

IS supports the entire company, so its objectives mirror those of the company as a whole. The basic objectives of any hotel/motel are:

- Keep occupancy high
- Keep operating costs down
- Protect and entertain guests

System integration is an important objective of hotel/motel IS departments. Many IS departments have installed automation of various functions, one piece at a time, without much concern for forming an integrated system. Two problems have arisen from this lack of integration:

a. Data entry clerks may have to enter one set of data to several different systems. For example, payroll and hotel security applications both require information about employees' working hours, but the systems are seldom integrated.

b. The uncoordinated mass of automation is difficult to manage.

Both of these problems can be alleviated by integration. Since integration after the fact is difficult, IS managers are approaching this problem in two ways.

a. System overhaul - design and implement a completely new integrated system, usually with the aid of outside consultants and system designers.

b. Gradual replacement - replace old applications one at a time with new ones which can eventually become part of a well integrated whole.

2. Construction

Conversion to distributed or decentralized systems is an immediate objective for IS departments in those segments which can afford such luxuries (single-family residential and public works), but a low priority for firms in the office and multi-family housing segments.

3. Agriculture

Respondents in the agriculture segment cited a wide variety of issues and objectives, including integration of applications, utilization of strategic capabilities of information systems to improve marketing, and optimization of cost efficiency in order to survive the poor farm economy. Controlling costs and optimizing efficiency are common threads among a large majority of responses.

4. Recreation/Entertainment

Improved data collection and analysis techniques to increase effectiveness of sales and demographic analysis and marketing are primary objections.

For movie, TV, and theater productions, maintaining the technical quality of the finished product is an important objective. IS can contribute to

achieving this objective with scheduling and production automation systems.

5. Automotive Services

With customer service a top priority, rental agencies and garages seek to maintain or install reservation systems, fleet maintenance systems, and computer diagnostic systems that will provide competitive customer service and vehicle reliability.

In the automotive repair business some shops can claim significant differentiation or services through computer diagnostics. For example, for its newest cars Ford has developed an on-board computer that can connect with diagnostic systems in dealers' service bays to provide instant diagnostics in some cases. Ford also provides an on-line data base to assist with more complex diagnostics and repairs.

6. Non-Profit/Membership Organizations

There has been some controversy in the non-profit segment over a financing strategy called "piggy-backing." Non-profits establish peripheral, profitable businesses to help finance their mainline non-profit operations. The controversy is that the profitable businesses of a non-profit organization may have an unfair advantage in the marketplace due to tax-exempt status.

The fundamental objectives of IS in the non-profit segment are:

- Provide basic accounting and office applications
- Facilitate fund raising

Association management is somewhere between for-profit and non-profit management. A large portion of income is derived from membership dues and fees for services provided directly to members, but associations must also tap other income sources. Associations are sources of information for an industry, and must manage and dispurse that information through data bases and other information management systems.

EXHIBIT II-2

"OTHER" INDUSTRY DRIVING FORCES

General
- Adjust Old Accounting Systems to New Tax Laws
- Encourage End-User Computing

Hotel/Motel
- Integrate Systems

Construction
- Coordinate Field Systems With Corporate Systems

Agriculture
- Control Costs and Optimize Efficiency

Recreation/Entertainment
- Pursue Improvements in POS for Data Collection

Automotive
- Improve Customer Service

Non-Profit/Membership Organizations
- Manage Fundraising
- Manage Information

B

Impact of New Technology

1. Hotel/Motel

Video conferencing has two opposing effects: It diminishes the need for business travel, and thus diminishes demand for lodging facilities, but if hotels and motels become providers of video conferencing services, they may make up for some of the business lost to the technology.

Property management systems act as information system hubs, tying disparate functions into one system.

Electronic locking systems are a relatively recent development which reduces theft and significantly eliminates the cost of re-keying rooms.

Energy management systems are essential for large properties since a 10 percent reduction in energy costs can represent significant savings. Energy management systems optimize air-conditioning and heating by automatically shutting them off in vacant rooms and by turning certain lights off automaticaly at appropriate times.

2. Construction

Computer technology has been slow to take hold in the construction industry because of the unusual nature of construction projects: no construction site is permanent, and the organization or labor changes constantly as subcontractors come and go. Automation of field operations is the area of most rapid development in IS in construction.

Until recently, IS for construction consisted almost entirely of accounting and office applications. The change is due to increasing functionality of project management packages and software that integrates the various operational aspects of construction.

Some construction companies have begun to integrate field and corporate applications in order to reduce duplicated data entry, and eventually, to feed expert system data bases.

- To a limited extent, construction companies are integrating CADD systems with estimating. Dimensions and materials specified in a design can be tied directly to estimating systems to avoid re-keying these data.

- Ultimately, data concerning building methods, as well as materials and dimensions, could be moved from a CADD system directly to an expert system for estimating. The expert system would then complete the estimate based on costs of materials and labor.

Integrating field applications with corporate applications adds to the responsibilities of the IS department.

The impact of technology will be significant. When critical path scheduling techniques can be effectively automated and integrated with cost control and corporate applications, improvements in speed and adherence to budgets and schedules will improve markedly. However, users and consultants to the construction industry agree that functional packages for these applications are simply not yet available.

3. Agriculture

Three to five percent of farmers will go under each year for the next four to five years, according to *Duns Business Monthly* (9/86). Large farms with the capital and economies of scale to weather lean times will be the survivers, and automated systems will play a major role in their marketing and operations strategies.

4. Recreation/Entertainment

The combination of point of sale (POS) and telecommunications technologies enables theaters and movie production and screening companies to monitor consumer preferences and deomgraphics with a speed not possible five years ago. Continuing improvements in POS for data collection and telecommunications for data transfer make sales forecasting even simpler and faster.

IS is also being used as a production tool in the TV and motion picture segments. Scheduling applications helps automate the most labor-intensive aspects of production, which, according to one respondent, provides "drastic cost reductions."

5. Automotive Services

Communication technology has provided the tools by which auto rental agencies have been able to offer drastic improvements in customer service. As rental agencies continue to seek new ways to differentiate their services, they often turn to technology for increasingly sophisticated reservation systems and reliable tracking of fleet maintenance records.

The most obvious impact of technology on auto repair services is faster, more accurate diagnoses of car problems. In addition, mechanics will have on-line data bases available for them to look up information on repair procedures or unusual makes and models.

6. Non-Profit/Membership Organizations

Non-profits and associations are often small organizations running on limited budgets. For this reason they employ very little expensive, highly advanced technology. Basic office functions, data base, and fund raising applications comprise the bulk of their data processing activities.

Membership organizations vary so greatly in size, function, and wealth that it is impossible to assess the impact of technology on membership organizations in general. Applications that are specific to the membership aspect of these organizations are essentially specialized data base packages which will continue to become easier to use over time, but there are no major changes on the horizon for IS in membership organizations.

III

Applications

III

Applications

A

Hotel/Motel

A property management system often acts as the hub or a large integrated hotel or motel system. It helps coordinate security, accounting, reservations, and personnel applications. Central reservation systems for hotels and motels make it possible for customers to book reservations at any of a chain's locations from any of its other locations. Reservation networks are likely to be available soon so independent hotels and motels will be able to take advantage of the communications technology. Independents would belong to a network and might submit to a code of standards and inspections set by the administering organization.

Other hotel/motel applications can be divided into two groups: Sales and Marketing, and Guest Services.

- Sales and Marketing

  Registration and billing systems keep track of guests' tabs and collect point of sale information for forecasting and sales analysis.

  Booking of conference facilities should be automated to allow sales people to schedule conferences and close sales while clients are on the phone.

- Guest Services

  A variety of electronic locking systems are available to help reduce theft of all kinds and to virtually eliminate employee theft.

  In-room entertainment can be managed and billed by computer. Guests will select movies or other video services via an in-room terminal, and the charges will automatically be billed to their account.

Concierge services will also be available through the television set or in-room terminal. Such services are already available in many hotel lobbies.

In-room microcomputers with network hookups will be a welcome perk to business travelers.

Hotels will provide video conferencing services in order to retain some of the business they would otherwise lose to the technology.

B

Construction

Project management is the most important industry-specific application in construction. Project management packages play a vital role in scheduling and cost control on-site, but are usually not well integrated with corporate systems and other on-site applications.

Other industry-specific construction applications include estimating, CADD (computer aided design and drafting) applications, and a variety of specialized engineering applications.

C

Agriculture

Applications for agriculture facilitate management of various kinds of farming and help optimize costs and productivity.

- Livestock management systems track geneology, health records and productivity of cows, sheep, chickens, and other livestock.
- Feed optimization packages analyze the nutritional value and cost of feed mixes.
- Fertilizer packages do the same thing to optimize cost-effectiveness of fertilizing.
- Orchard and crop management systems track costs of production for grains and produce.

Some agricultural banks provide crop selection services for their farming customers. They use microcomputers to analyze individual factors and price information from Dow Jones, CompuServe, and the AgriData Network to determine the most profitable mix of crops to plant *(ABA Banking Journal: 11/86)*.

D

Recreation/ Entertainment

Large recreation/entertainment systems focus on market research and sales analysis.

- Point of sale (POS) systems provide data collection to feed sales analysis and forecasting applications.
- Telecommunications plays an important role in this segment since data must be transferred from the point of sale to corporate computers to analysis.

Other applications for recreation/entertainment include sports statistics packages, league management packages, production scheduling for movies and TV, and a wide variety of specialized packages for theater and sports facility management, radio and TV station management, and movie, TV, and radio production.

E

Automotive

Networked reservation systems work the same way for auto rental agencies as for hotels and motels: A customer can reserve a car at any of an agency's outlets from any of its other outlets. The quality of a rental agency's reservation system is particularly important in drawing customers since customers have closer contact with it than with any of an agency's other systems.

Fleet management systems enable auto rental agencies to track maintenance records on all their cars and to schedule routine maintenance.

Auto mechanics are increasingly using computerized diagnostic tools and on-line data bases to assist in auto repair.

F

Non-Profit/ Membership Organization

Applications for this segment include on-line legislative data-bases for associations and non-profit tax exempt organizations, specialized fund-raising packages, and specialized member record-keeping packages.

IV

Budget Analysis

IV

Budget Analysis

The results of the annual budget analysis are contained in Exhibit IV-1. Personnel is by far the largest category, accounting for 44 percent of IS budgets. Hardware follows at around 20 percent.

- Mainframe systems account for the largest share of the hardware budget at 29 percent.
- Microcomputers are the fastest growing item in the hardware budget.

"External Software" and "Hardware Maintenance" are the fastest growing items on the entire budget, both growing at 22 percent.

"Software Maintenance" is the second fastest growing item with a growth rate of 19 percent.

Companies in the "Other" Industry sector developed 70 percent of all their software in house. They purchased the rest as packaged software, or had it developed outside (see Exhibit IV-2). And; 60 percent of the programming staffs of "Other" Industry companies provide maintenance and enhancements to existing systems, while the other 40 percent develop new software (see Exhibit IV-3).

EXHIBIT IV-1

1986 BUDGET DISTRIBUTION AND 1986/1987 CHANGES IN THE "OTHER" INDUSTRY SECTOR

BUDGET CATEGORY	1986 I.S. BUDGET (PERCENT)	1986/1987 EXPECTED BUDGET GROWTH (PERCENT)
Personnel	44.0	7
Mainframe Processors	13.0	7
Minicomputers	6.0	8
Microcomputers	6.0	1
Mass Storage Devices	4.0	10
Other Hardware	11.0	13
Total Hardware	40.0	11
Data Communications	4.0	10
External Software	4.6	22
Professional Services	1.4	8
Software Maintenance	1.5	19
Hardware Maintenance	1.5	22
Other	3.0	5
Total	100.0	10

EXHIBIT IV-2

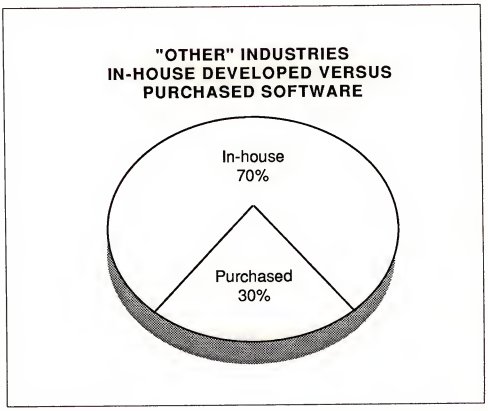
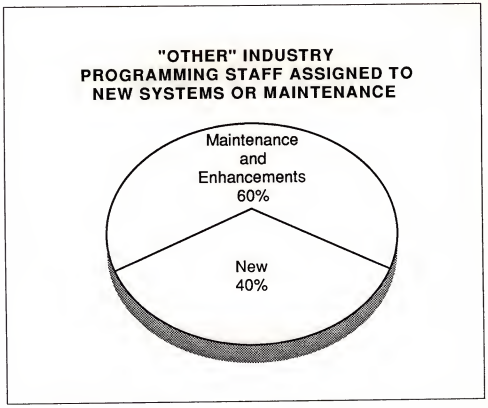


EXHIBIT IV-3



About INPUT

INPUT provides planning information, analysis, and recommendations to managers and executives in the information processing industries. Through market research, technology forecasting, and competitive analysis, INPUT supports client management in making informed decisions. Continuing services are provided to users and vendors of computers, and communications and office products and services.

The company carries out continuous and in-depth research. Working closely with clients on important issues, INPUT's staff members analyze and interpret the research data, then develop recommendations and innovative ideas to meet clients' needs. Clients receive reports, presentations, access to data on which analyses are based, and continuous consulting.

Many of INPUT's professional staff members have nearly 20 years of experience in their areas of specialization. Most have held senior management positions in operations, marketing, or planning. This expertise enables INPUT to supply practical solutions to complex business problems.

Formed in 1974, INPUT has become a leading international planning services firm. Clients include over 100 of the world's largest and most technially advanced companies.

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